II. Remarks

A. Introduction.

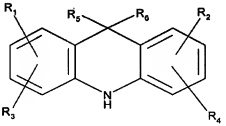
Reconsideration and allowance of the subject application are respectfully requested. Claims 1, 5-9, 11-19 and 22 are pending in the application. Of the examined claims, Claims 1, 11, and 22 are independent. No claim amendments have been made via this Amendment. No new matter has been added.

B. The cited references fail to teach or suggest the claimed diphenylamine, the claimed acridan, and the relationship therebetween.

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,268,394 to Wheeler, et al. ("Wheeler") in view of U.S. Patent No. 6,315,925 to Aebli, et al., et al. ("Aebli"). Applicants traverse the rejection in view of the following arguments.

i. The process features of composition Claim 1 impart structure to the claimed composition.

The invention of present Claim 1 relates to a composition comprising a lubricant and a mixture of antioxidants. The mixture is prepared by the partial condensation of an alkylated diphenylamine ("DPA") selected from the group consisting of mono-, di-, and tri-nonylated DPAs with an aldehyde or ketone in the presence of an acidic catalyst to yield at least one acridan of the general formula:



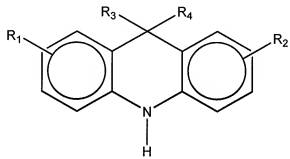
wherein R_1, R_2, R_3, and R_4, are independently selected from the group consisting of hydrogen and nonyl, provided that at least one of R_1, R_2, R_3, and R_4 is not hydrogen, and R_5 and R_6 are independently selected from the group consisting of C_1 to C_{20} hydrocarbyl and hydrogen. The mixture of antioxidants also comprises residual alkylated DPA, which remains after the partial condensation. Because the acridan is one of the reaction products of the DPA, the acridan and the DPA are necessarily related, e.g., they contain the same alkyl groups on the phenyl groups. The residual alkylated DPA is not separated from the acridan product and remains in the mixture of antioxidants with the acridan. The resultant mixture, which comprises the reactant DPA and ***the related product acridan***, serves as a useful antioxidant package. (Present

specification, Examples 16 and 18). Beneficially, the claimed mixture of antioxidants does not require further separation, nor does it require further combination with additional additives. Thus, the claimed mixture demonstrates process advantages. Claims 11 and 22 recite features similar to those of Claim 1.

ii. The DPAs of Aebli and the acridans of Wheeler are not related.

In view of the above interpretation, in order to properly establish a *prima facie* case of obviousness, the Office Action must establish, *inter alia*, a mixture containing: 1) a DPA; and 2) an acridan that results from the condensation of the same DPA with an aldehyde or ketone in the presence of an acidic catalyst, e.g., ***an acridan with the same alkylated phenyl groups as the DPA.***

In an attempt to teach or suggest the related DPA/acridan combination of the independent claims, the Office Action cites Aebli, which teaches very specific DPAs (or blends of DPAs), and cites Wheeler for teaching the acridan. The Office Action acknowledges the product-by-process features of the claims, but mistakenly alleges that the "combination of nonylated diphenylamines and an acridan containing nonyl groups meets the product-by-process limitations recited in the claims." (Office Action, page 4). Applicants disagree that Wheeler and Aebli meet the product-by-process features of the present claims. The specific DPAs of Aebli are formed by alkylating the phenyl groups of a DPA in excess of nonene or a mixture of isomeric nonenes in the presence of from 2.0 to 25.0% of an acid earth, e.g., acid clay, and in the absence of a free protonic acid. (Aebli, column 1, lines 59-63). As such, the resultant nonylated DPAs of Aebli contain high concentrations, e.g., ***at least 68 area%, of dinonyldiphenylamine.*** (Aebli, column 2, lines 7-30). Wheeler provides the following formula for its acridans.



wherein R_1 and R_2 can be hydrogen, C_1-C_{18} alkyl, or C_7-C_{18} aralkyl. Thus, acridans of Wheeler's formula can be non-alkylated, monoalkylated, and/or dialkylated by any one or more of the many suggested R groups. Wheeler fails to specifically identify nonyl acridans (as conceded in the Office Action at page 3), much less the high concentrations of

dinonyldiphenylamine, as taught in Aebli. Wheeler merely provides an exceedingly broad formula for its acridan. In doing this, Wheeler generically discloses a virtually infinite number of acridans, which would, when combined with the DPAs of Aebli, lead to an equally tremendous number of DPA/acridan combinations. Absent express disclosure of a specific chemical compound in a reference, it is well-established that presenting a chemical formula with broadly defined R groups covering hundreds or thousands of possible compounds cannot support that one specific chemical compound. (See *In re Ruschig*, 379 F.2d 990 (C.C.P.A. 1967) (holding that application that disclosed a chemical formula that included R groups was insufficient for supporting one specific compound)). Thus, Wheeler fails to specifically teach or suggest acridans that are related to the DPAs of Aebli, e.g., acridans having dinonylated phenyl groups, nor does Wheeler teach or suggest the importance of dinonylated phenyl groups on its acridans. Thus the DPAs of Aebli and the acridans of Wheeler fail to show the claimed relationship to one another. Quite simply, the reactant DPA fails to match up with the product acridan. As such, this claim feature has not been met.

It is well settled that the Patent Office bears the burden of establishing a *prima facie* case of obviousness under 35 U.S.C. § 103. (See *In re Deuel*, 51 F.3d 1552, 1557 (Fed. Cir. 1995). To establish a *prima facie* case of obviousness, the Patent Office must show *inter alia* that the prior art teaches or suggests every claim limitation. (See *Manual of Patent Examination and Procedure (MPEP)* § 2143; *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991)). As indicated above, for at least the reasons mentioned above, the combination of Wheeler and Aebli fails to teach or suggest a reactant DPA and the related product acridan. Thus, the cited references fail to teach or suggest every feature of Claims 1, 11, and 22, and a *prima facie* case of obviousness has not been established. The rejections should be withdrawn.

iii. Wheeler fails to teach or suggest tri-substituted acridans.

In addition, as discussed above, Aebli relates to a very specific blend of DPAs. In addition to the dinonyldiphenylamines discussed above, Aebli's DPA mixture (like the claimed mixture) also includes a lesser concentration of ***trinonyldiphenylamine***s. (Aebli, column 2, lines 2-65). As indicated above, Wheeler only provides for acridans of the above formula having, at most, two alkyl substituents on the phenyl groups, e.g., at most, ***dialkylated DPAs***. Wheeler does not and cannot teach or suggest a trialkylated DPA as is included in Aebli's mixtures. Thus, the DPAs of Aebli and the acridans of Wheeler would not have the claimed relationship discussed above, e.g., Aebli's DPA mixture and Wheeler's acridans do not match up. Thus, for

this additional reason, the cited references fail to teach or suggest every feature of Claims 1, 11, and 22, and a *prima facie* case of obviousness has not been established. The rejections should be withdrawn.

iv. There is no motivation to use Aebli's DPAs as reactants to form acridans.

In addition, the Office Action improperly alleges that "it would have been obvious . . . to form the antioxidant combination by reacting the nonylated diphenylamines of Aebli with a ketone to for the acridan of Wheeler." (Office Action, page 4). Applicants disagree. As indicated above, Wheeler fails to teach or suggest a preference for dinonyldiphenylamines. In fact, Wheeler only teaches t-octyl and t-butyl as preferred alkylation groups. (Wheeler, column 4, line 67 to column 5, line 3). Thus, Wheeler actually ***teaches away*** from using nonyl groups as substituents in its acridans. Further, there is absolutely no teaching in Aebli that its specific DPAs should be reacted with an aldehyde or a ketone to form an acridan. Thus, the references provide no motivation whatsoever (nor has the Office Action provided any motivation) for utilizing Aebli's DPAs as reactants to form acridans. As such the Office Action is merely selecting the various claim features in separate references and improperly using Applicants' specification as a guide to arrive at the claimed invention. Proper *KSR* rationale has not been provided for the use of Aebli's DPAs as reactants to form acridans.

It has been established that, in determining obviousness, one "must not pick and choose isolated elements from the prior art and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention." (See *Dennison Manufacturing Company v. Panduit Corp.*, 475 US 809, 229 USPQ 478, 479 (1986)). "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." (See *In re Fritch*, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992)). Picking and choosing among selected teachings in the prior art is a form of improper hindsight reconstruction. (See *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988)). Importantly, it is well established that a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is ***not*** sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (See *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)). As indicated above, the Office Action has merely identified a very specific

DPA and a very general formula for an acridan, and has provided absolutely no motivation for utilizing the specific DPA to produce a related acridan. Thus, the combination of Wheeler and Aebli is improper and the rejection should be withdrawn.

C. Dependent Claims.

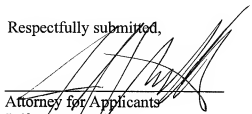
Dependent Claims 5-9, and 12-19 depend from their respective independent claims and include all of the features thereof. The independent claims are patentable for the reasons discussed above. As such, the dependent claims are also patentable for at least the same reasons. The rejections should be withdrawn.

D. Conclusion.

In view of the above, it is believed that this application is in condition for allowance, and a Notice thereof is respectfully requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3620. All correspondence should continue to be directed to the address given below.

Respectfully submitted,



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